



Carrier

A United Technologies Company

N6MHP
YE0610
YE0611

**A^{series}
Advantage™**

Installation & Service Manual



N6MHP(L/M)

**HIGH PERFORMANCE MULTI-SHELF MEAT/DELI/CRITICAL
TEMP PRODUCE MERCHANDISER**

Medium Temperature Self Serve Display Cases

**This manual has been designed to be used in conjunction with the
General (UL/NSF) Installation & Service Manual.**

Save the Instructions in Both Manuals for Future Reference!

These merchandisers conform to the American National Standard Institute & NSF International Health and Sanitation standard ANSI/NSF 7 - 2003.

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The following High Performance Medium Temperature, Multi-Shelf Meat Merchandiser models are covered in this manual:

MODEL	DESCRIPTION
N6MHPL	8' & 12' HIGH PERFORMANCE MEDIUM TEMP. MEAT MERCHANDISER WITH 18" FRONT
N6MHPM	8' & 12' HIGH PERFORMANCE MEDIUM TEMP. MEAT MERCHANDISER WITH 22" FRONT

SPECIFICATIONS

N6MHP High Perf. Meat/Deli/Critical Temp Produce Merchandiser Specification Sheets

Refrigeration Data:

MODEL	CASE LENGTH	CASE USAGE	CAPACITY (BTUH / FT)		EVAPORATOR (°F)	UNIT SIZING (°F)	DISCHARGE AIR		AVG. REF. CHARGE (LBS/FT)
			PARALLEL	CONVENTIONAL			TEMPERATURE (°F)	VELOCITY (FPM)	
N6MHPL	6' / 8' / 12'	MED TEMP	1,481*	1,661*	+24**	+22	+28	258***	0.57
N6MHPM	4' / 6' / 8' / 12'	MED TEMP	1,421*	1,594*	+24**	+22	+28	258***	0.57

* Capacity data listed for cases with 2 rows of T-8 canopy lights, optional 4 rows of lighted shelves and 1 row of nose lights. Adjustments must be made to this base rating for each option installed on this case. DEDUCT 23 BTUH/FT for each row of unlighted shelves. For sizing all refrigeration equipment other than TYLER, use conventional BTUH values.

** Evaporator temperature is defined as the saturated suction temperature leaving the case.

*** Air velocity measured 1 hour after defrost at the top discharge air duct using an ALNOR JR. velometer with a scoop.

FOR SPECIFIC COMPRESSOR SIZING INFORMATION, REFER TO TYLER APPLICATIONS FOR RACK SYSTEM COMPRESSORS AND/OR THE COMPRESSOR MANUFACTURERS FOR SINGLE COMPRESSORS. FOR LINE SIZING INFORMATION, REFER TO THE MISCELLANEOUS SECTION "BUFF" IN THE TYLER SPECIFICATION GUIDE.

Electrical Data:

Fans and Heaters (120 Volt)

MODEL	CASE LENGTH	FANS / CASE	TOTAL STANDARD FANS		TOTAL ECM FANS		TOTAL ANTI-SWEATS	
			AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
N6MHPM	4'	1	1.00	82.6	N/A	N/A	N/A	N/A
N6MHP(L/M)	6'	2	2.00	165.2	N/A	N/A	N/A	N/A
N6MHP(L/M)	8'	2	2.00	165.2	N/A	N/A	N/A	N/A
N6MHP(L/M)	12'	3	3.00	247.8	N/A	N/A	N/A	N/A

T-8 Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	CANOPY LIGHTS* — PER ROW				SHELF LIGHTS — PER ROW								NOSE LIGHT		MAX. LIGHTING (7 ROWS)	
		AMPS		WATTS		AMPS				WATTS				AMPS	WATTS	AMPS	WATTS
		1	2	1	2	1	2	3	4	1	2	3	4				
N6MHPM	4'	0.35	0.50	42	60	0.45	0.60	0.80	0.95	54	72	96	114	0.35	42	1.80	216
N6MHP(L/M)	6'	0.40	0.75	48	90	0.60	0.90	1.20	1.50	72	108	144	180	0.40	48	2.65	318
N6MHP(L/M)	8'	0.50	0.95	60	114	0.90	1.20	1.60	1.90	108	144	192	228	0.50	60	3.35	402
N6MHP(L/M)	12'	0.70	1.40	84	168	1.35	1.80	2.40	2.85	162	216	288	342	0.70	84	4.95	594

* Standard lighting for this case is 2 rows of T-8 canopy lights.

Defrost Data:

DEFROST TYPE*	DEFROSTS PER DAY	DURATION TIME (MIN)**	ELEK. THERMOSTAT / AIR SENSOR SETTINGS			EPR SETTINGS ***		CONVENTIONAL COMPRESSOR SETTINGS****				DEFROST WATER (LB / FT / DAY)
			USAGE	CUT IN	CUT OUT	R22 (PSIG)	R404A (PSIG)	R22 (PSIG) CUT-IN	R22 (PSIG) CUT-OUT	R404A (PSIG) CUT-IN	R404A (PSIG) CUT-OUT	
TIME OFF	6	26	MED TEMP	28°F	26°F	48	61	46	35	59	47	7.05

* All high performance cases use OFF CYCLE defrost.

** NOTE: 26 minutes is for EPR with suction stop for defrost isolation. Defrost times increases by four minutes (30 min. total) when defrost isolation is by pump down.

*** If EPR is utilized, use the settings shown in the chart. NOTE: The customer will need to set the EPR on the parallel rack or single unit to the appropriate suction temperature and the N6MHP cases must be on a separate suction stub with a separate EPR. ADD 0.5# to EPR setting for each 1000 foot rise in elevation.

**** Required setup for a conventional unit uses an electronic thermostat to assure accurate temperature control.

CASE-TO-CASE SUCTION LINE SUB-FEED BRANCH LINE SIZING														
MODEL	4' / 6'	8'	12'	16'	20'	24'	28'	32'	36'	40'	44'	48'	52'	56'
N6MHP(L/M) R22	7/8"	7/8"	7/8"	7/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"

CASE CIRCUITS: This case requires a 120V circuit for fans and lights.

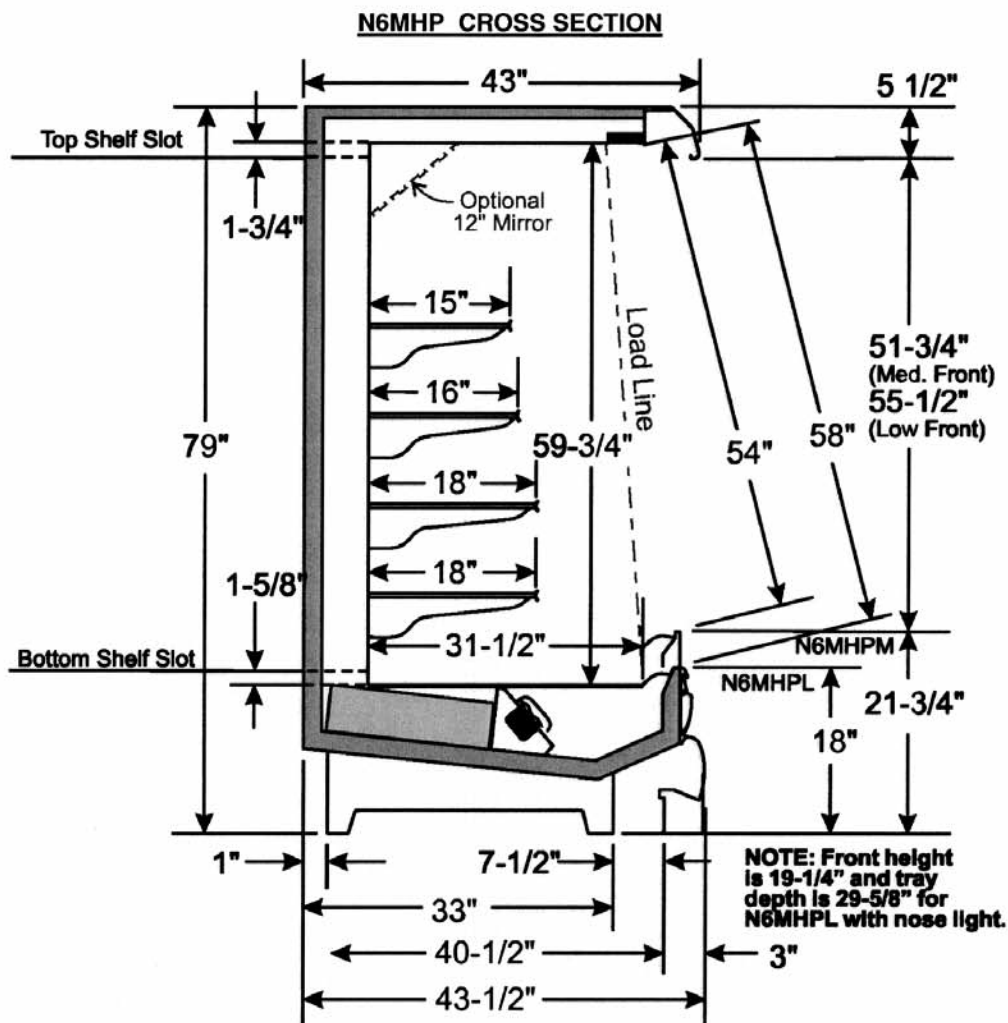
Screens are standard. Shelving must be ordered separately. All rows of shelving require a shelf gasket. Shelves are available in 15", 16" and 18" deep sizes. When multiple shelf sizes are used, position smallest shelf size on top to largest shelf size on bottom.

When mirrors are used, only 12" wide mirrors are allowed. NOTE: 1 or 2 rows of discharge holes must be left open between the top shelf and bottom of mirror.

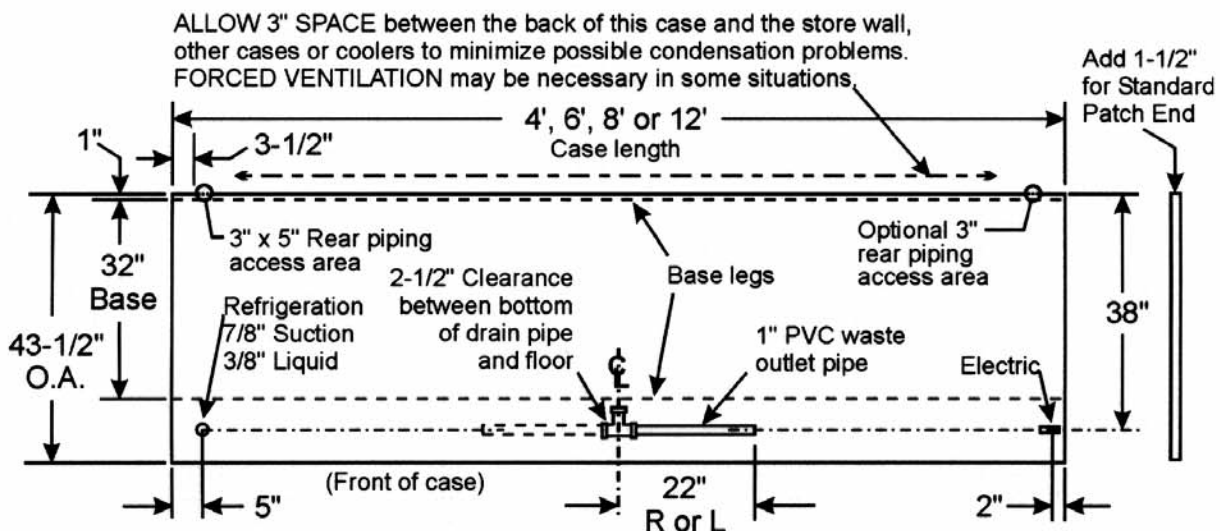
UL SANITATION approved in accordance with ANSI/NSF – 7.

CASE BTUH REQUIREMENTS are calculated to produce approximately the indicated entering-air temperature with absolute maximum operating ambient limits of 75°F & 55RH.

The information contained herein is based on technical analysis and/or tests performed in a controlled lab environment that are consistent with industry practices, and is intended as a reference for system sizing and configuration purposes only and for use by persons having technical skill at their own discretion and risk. Conditions of use are outside of Tyler's control and we do not assume and hereby disclaim any liability for results obtained or damages incurred through application of or reliance on the data presented, including but not limited to specific energy consumption with any particular model or installed application. SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

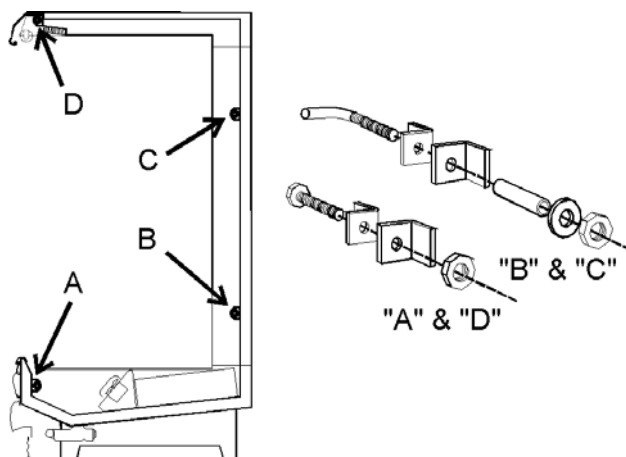


FLOOR PLAN



INSTALLATION PROCEDURES

Carpentry Procedures



Case Pull-Up Locations

All N6MHP models have four pull-ups at each end of the case. Pull-ups A, B, C and D are located as shown and should be installed and tightened starting with A and finishing with D.

See “General-UL/NSF I&S Manual” for line-up assembly instructions.

Refrigeration Procedures

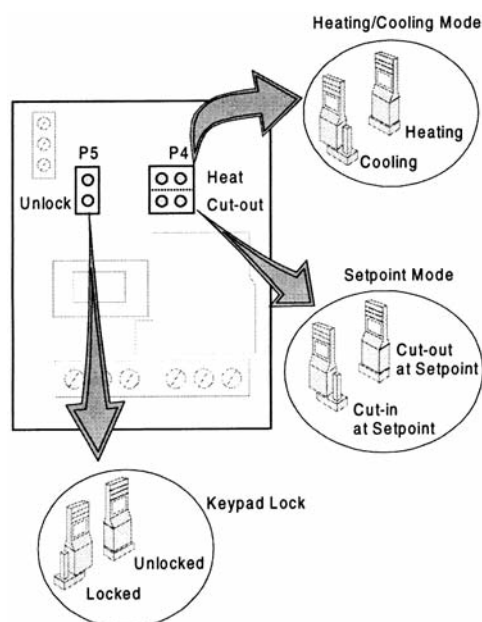
Refrigeration system and superheat instructions can be found in the “General (UL/NSF) I&S Manual”. Case electronic temperature control information is listed below.

Electronic Temperature Control

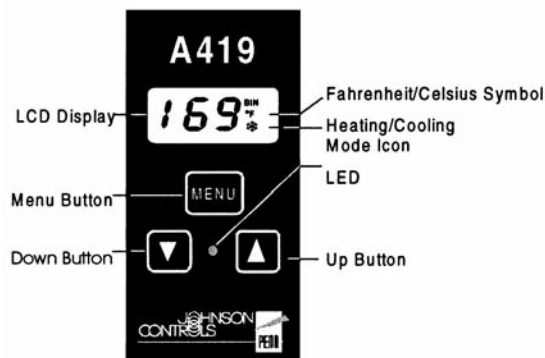
Whenever an N6MHP uses an electronic thermostat and solenoid valve for temperature control, use the following instructions to properly set-up the electronic thermostat.

Setting the Electronic Thermostat

1. Remove the four screws and cover from the electronic thermostat.
2. Connect sensor wires to the common (COM) and sensor (SEN) terminals of the terminal strip located at the top left of the printed circuit board. The sensor leads are interchangeable.



3. Set the Heating/Cooling jumper blocks to the “COOL” position.
4. Set the Cut-in at Setpoint/Cut-out at Setpoint jumper blocks to the “Cut-out at Setpoint” position.
5. Set the keypad Locked/Unlocked jumper blocks to the “Unlocked” position.
6. Replace the electronic thermostat cover and secure with four screws.



7. To adjust the setpoint:
 - a. Push the Menu Button. “SP” will flash on the LCD display.
 - b. Push the Menu Button one more time and a setpoint temperature will be displayed.

- c. Push the Up or Down Button until the desired setpoint is displayed.
N6MHP (w/shelving) = 26°F
 - d. Push the Menu Button.
8. To adjust the differential:
- a. Push the Menu Button. "SP" will flash on the LCD display.
 - b. Push the Down Button until "DIF" is shown on the LCD display.
 - c. Push the Menu Button one more time and a differential number will be displayed.
 - d. Push the Up or Down Button until the desired differential setting is displayed.
N6MHP (all applications) = 2°F
 - d. Push the Menu Button.

With the cooling mode selected, the differential is ABOVE the setpoint. The relay will energize and the LED indicator will illuminate when the temperature reaches the differential setting. When the temperature drops to the setpoint, the relay and LED indicator will de-energize and refrigeration will stop.

The settings above are specific to TYLER N6MHP cases. Other applications will require different setpoints and differentials.

Electrical Procedures

Electrical Considerations

CAUTION

Make sure all electrical connections at components and terminal blocks are tight. This will prevent burning of electrical terminals and/or premature component failure.

NOTE

Raceway covers will be shipped loose. See the "General-UL/NSF I&S Manual" for raceway cover installation and removal instructions.

Case Fan Circuit

This circuit is to be supplied by an uninterrupted, protected 120V circuit. The case fan circuit is not cycled.

Fluorescent Lamp Circuit

Case lighting is supplied by T-8 electronic ballast lights. The standard lighting is 1-row of T-8 canopy lights.

Defrost Information

See "General-UL/NSF I&S Manual" for operational descriptions for each type of defrost control.

Defrost Control Chart

Defrost Type	Defrosts Per Day	Defrost Duration (Min)
Off Time (w/ shelves)	6	26*

***26 minutes is for EPR only. Defrost duration increases by 4 minutes when controller methods do not include an EPR valve.**

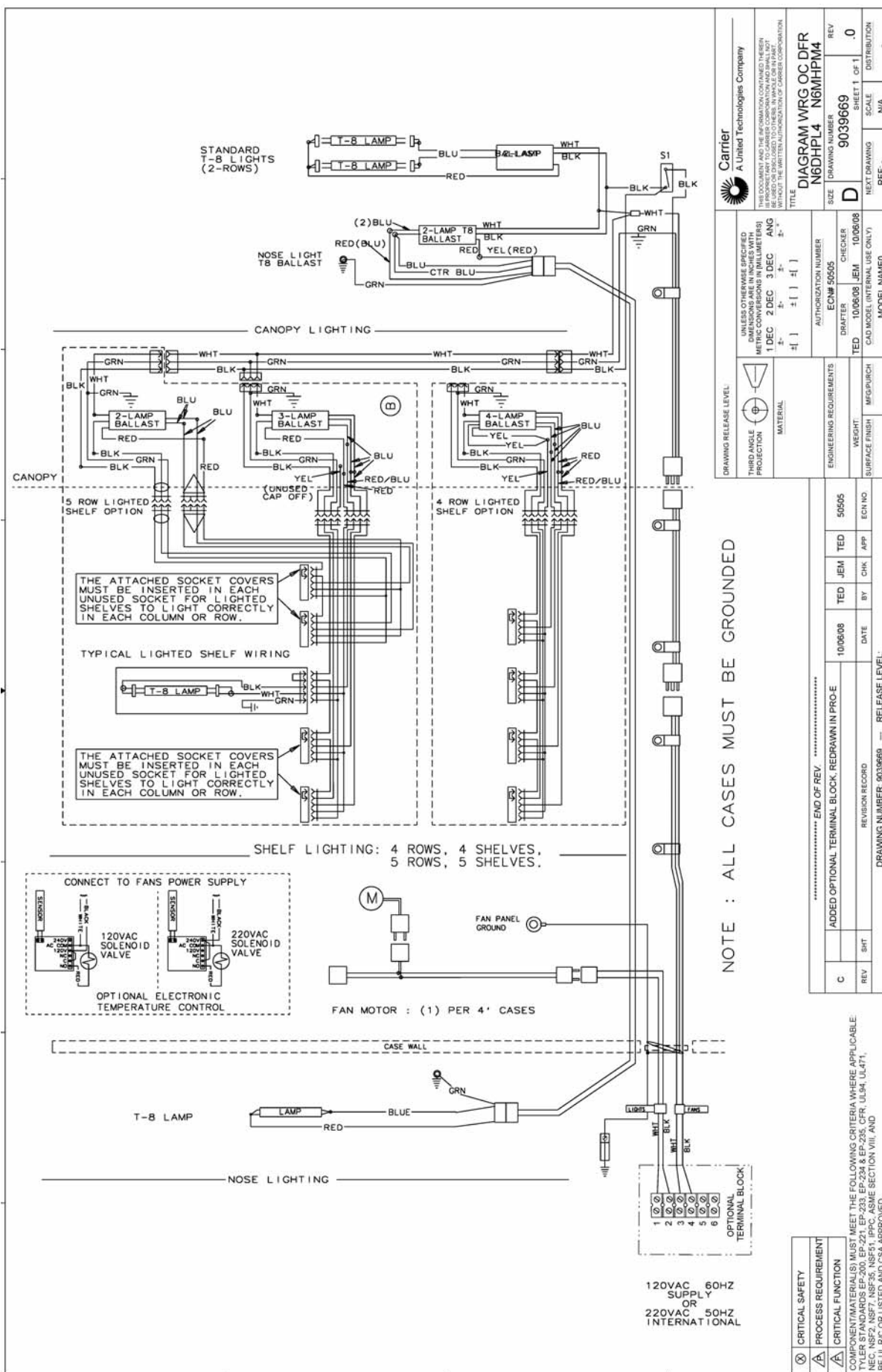
WIRING DIAGRAMS

ELECTRICIAN NOTE - OVERCURRENT PROTECTION

120V circuits should be protected by 15 or 20 Amp devices per the requirements noted on the cabinet nameplate or the National Electrical Code, Canadian Electrical Code - Part 1, Section 28. 208V defrost circuits employ No. 12 AWG field wire leads for field connections. On remote cases intended for end to end line-ups, bonding for ground may rely upon the pull-up bolts.

The following wiring diagrams on pages 8, 9 and 10 will cover the N6MHP case circuits. The defrost and lighting circuits are covered in the case circuit diagrams.

N6MHPM Domestic & Export (50 Hz) Case Circuits (4' Cases)



STANDARD T-8 LIGHTS (2 ROW)

OPTIONAL T-8 LIGHTS (3rd ROW)

5TH ROW (TOP) SHELF LIGHTS, BALLAST AND HARNESS. BALLAST IS MOUNTED ON LIGHT CHANNEL.

TYPICAL LIGHTED SHELF WIRING

THE ATTACHED SOCKET COVERS MUST BE INSERTED IN EACH UNUSED SOCKET FOR LIGHTED SHELVES TO LIGHT CORRECTLY IN EACH COLUMN OR ROW.

NOTE: NBDHP CASES CANNOT ACCOMMODATE THE 5th ROW OPTION.

OPTIONAL SHELF LIGHTING: 4 ROWS, 8 SHELVES.
5 ROWS, 10 SHELVES.

CONNECT TO FANS POWER SUPPLY

OPTIONAL ELECTRONIC TEMPERATURE CONTROL

FAN MOTORS : (2) PER 6&8' CASES

OPTIONAL NOSE LIGHTING

OPTIONAL TERMINAL BLOCK

120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL

NOTES: CASES THAT USE THIS SCHEMATIC
NBDHP 8 FT
NSMHP 6&8 FT
NBDHP(A) 6&8 FT
NHDHP 8 FT
NHDHP 6&8 FT

NOTE : ALL CASES MUST BE GROUNDED

Carrier A United Technologies Company		DESIGN		ENGINEERING REQUIREMENTS		MANUFACTURING		REVISION RECORD		Critical Function	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES UNLESS NOTED OTHERWISE		THERMAL ASSEMBLY PRODUCTION		TECHNOLOGY CENTER		TECHNOLOGY CENTER		TECHNOLOGY CENTER		TECHNOLOGY CENTER	
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TITLE		AUTHORIZATION NUMBER		ECN# 50505		ECN# 50505		ECN# 50505		ECN# 50505	
DIAGRAM WRG OC DFR											
NBDHP(A) 6&8FT											

STANDARD T-8 LIGHTS (2 ROWS)

OPTIONAL T-8 LIGHTS (3rd ROW)

NOSE LIGHT T8 BALLAST

CANOPY LIGHTING

5TH ROW (TOP) SHELF LIGHTS, BALLAST, AND HARNESS. BALLAST IS MOUNTED ON LIGHT CHANNEL

TYPICAL LIGHTED SHELF WIRING

NOTE: N6PHP CASES CANNOT ACCOMMODATE THE 5TH ROW OPTION.

OPTIONAL SHELF LIGHTING: 4 ROWS, 12 SHELVES. 5 ROWS, 15 SHELVES.

CONNECT TO FANS POWER SUPPLY

OPTIONAL ELECTRONIC TEMPERATURE CONTROL

FAN MOTORS : (3) PER 12' CASES

OPTIONAL NOSE LIGHTS

TERMINAL BLOCK

<p>CASES THAT USE THIS DIAGRAM</p> <p>N6PHP</p> <p>N6MHP</p> <p>N6DHP (A)</p> <p>N6DHPR</p> <p>N6DHP</p>		<p>CRITICAL SAFETY</p> <p>CRITICAL FUNCTION</p> <p>PROCESS REQUIREMENT</p>															
<p>COMPONENT(MATERIAL)S MUST MEET THE FOLLOWING CRITERIA WHERE APPLICABLE:</p> <p>1. ALL ELECTRICAL MATERIALS SHALL BE UL LISTED OR ENEC APPROVED.</p> <p>2. ALL ELECTRICAL MATERIALS SHALL BE UL LISTED OR ENEC APPROVED.</p> <p>3. ALL ELECTRICAL MATERIALS SHALL BE UL LISTED OR ENEC APPROVED.</p> <p>4. ALL ELECTRICAL MATERIALS SHALL BE UL LISTED OR ENEC APPROVED.</p> <p>5. ALL ELECTRICAL MATERIALS SHALL BE UL LISTED OR ENEC APPROVED.</p>		<p>REVISION RECORD</p> <table border="1"> <tr> <th>REV</th> <th>SH</th> <th>DATE</th> <th>BY</th> <th>CHK</th> <th>APP</th> <th>ECN NO.</th> </tr> <tr> <td>1</td> <td></td> <td>6/11/08</td> <td>JEM</td> <td>TED</td> <td></td> <td>50505</td> </tr> </table>		REV	SH	DATE	BY	CHK	APP	ECN NO.	1		6/11/08	JEM	TED		50505
REV	SH	DATE	BY	CHK	APP	ECN NO.											
1		6/11/08	JEM	TED		50505											

NOTE : ALL CASES MUST BE GROUNDED

..... END OF REV.

ADDED OPTIONAL TERM BLK. REDRAWN IN PRICE

DRAWING NUMBER: 9037734

RELEASE LEVEL: 1

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<p>DESIGN</p> <p>UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES</p> <p>TOLERANCES ON</p> <p>1 DEC 2 DEC 3 DEC ANG</p> <p>± .1 ± .03 ± .015 ± .2</p>		<p>AUTHORIZATION NUMBER</p> <p>ECN# 50505</p>	
<p>ENGINEERING</p> <p>TED 6/11/08</p>		<p>MANUFACTURING</p> <p>TED 6/11/08</p>	
<p>ENGINEERING REQUIREMENTS</p> <p>WEIGHT</p>		<p>CHECKER</p> <p>TED 6/11/08 JEM</p>	
<p>MATERIAL</p>		<p>CAD MODEL (INTERNAL USE ONLY)</p> <p>MODEL NAME: 1</p>	

DIAGRAM WRG OC DFR

N6DHPA 12 FT

REV 1

DRAWING NUMBER 9037734

SHEET 1 OF 1

SCALE N/A

DISTRIBUTION

CLEANING AND SANITATION

Component Removal and Installation Instructions for Cleaning

Shelves and Shelf Brackets

1. Remove product from shelves.
2. If shelf has a light, unplug the light cord from the socket in the rear duct panel. Completely insert socket cover in the light socket to protect the receptacle.
3. Push shelves back and then lift up and out to remove them from the shelf brackets.
4. Remove shelf brackets from slots in rear uprights.
5. After cleaning, replace in reverse order.

Bottom Trays

1. Remove product from bottom of case.
2. Grasp and lift out each of the bottom trays from the case interior.
3. After cleaning, replace in reverse order.

Front Air Ducts

1. Remove lower trays, see this page.
2. Lift out front air duct sections.
3. After cleaning, replace in reverse order.

Rear Duct Panels (w/o Shelf Light Sockets)

1. Remove shelves and bottom trays, see above.
2. Remove mounting screws and rear duct panels from case.
3. After cleaning, replace and secure rear duct panels in reverse order.

(with Shelf Light Sockets)

1. Remove shelves and bottom trays, see above.
2. For cases with 5 rows of lighted shelves, remove screw above top shelf socket and push socket assembly back through the hole in the rear duct panel.
3. Remove mounting screws from rear duct panel.

4. Slowly lift out rear duct panel until the shelf harness connector near the top of the panel can be accessed.
5. Disconnect shelf harness connector and complete removing the rear duct panel.

WARNING

Rear duct panels with electrical receptacles can be cleaned without removing the electrical receptacles. Do not get moisture on electrical wires when cleaning under this cover. Moisture on wires could cause premature product failure and/or personal injury or death from electrical shock.

6. After cleaning, reconnect the shelf harness connector: install the top socket assembly: replace and secure rear duct panels in reverse order.

Discharge Air Honeycomb

1. Loosen screws securing rear retainer plate.

NOTE

Note position of the honeycomb grid during removal so it can be reinstalled the same way.

2. Slide rear retainer plate back until the honeycomb grid sections can be removed from the top duct.

CAUTION

Improper installation of the honeycomb grid section could result in improper air flow and/or poor refrigeration.

3. After cleaning, replace honeycomb grid sections as they were removed and secure with the rear retainer plate and screws.

Top Duct

1. Remove shelves and shelf brackets, see above.
2. Remove screws, rear retainer plate and honeycomb grid sections from top of case.
3. Remove screws and top duct from case.
4. After cleaning, replace top duct and remaining components in reverse order.

Front Cladding

1. Remove front kickplate and raceway cover. (See General-UL/NSF I&S Manual.)
2. Remove color band, bumper and bumper retainer from the case. (See General-UL/NSF I&S Manual.)
3. Remove screws for top and bottom of front cladding and remove cladding.
4. After cleaning, replace front cladding and remaining front components in reverse order.

Cleaning Instructions**WARNING**

TYLER Refrigeration does not recommend the use of high pressure cleaning equipment on display cases!! High pressure cleaners can penetrate and/or damage joint seals. Damaged seals allow water leaks and/or air leaks that can cause poor case refrigeration.

CAUTION

- When cleaning this case, try not to introduce water into the case faster than it can be carried away by the waste outlet.
- Liquid chlorine bleach is corrosive to metals. The use of bleach or products containing bleach will damage metal surfaces and void the case warranty.
- Sanitize the case with Quaternary Ammonium Solutions (ex: KAYQUAT II, J-512 Sanitizer, SANIQUAT 512, etc...) approved per 21CFR 178.1010, followed by adequate draining and air drying. These solutions may be obtained from Kay Chemical Co., Johnson Wax Professional, Coastwide Laboratories, etc....
- Always use a soft cloth or sponge with mild detergent and water to clean any glass. Never use abrasives or scouring pads to clean glass. They can scratch and/or damage the glass.

See "General (UL/NSF) I&S Manual" for case cleaning instructions.

Stainless Steel Cleaning Methods

The cleaning data in the following stainless steel cleaning chart was supplied by AISI. The information was supplied by Prime Metals Division, Alumax Aluminum Corporation.

<u>TYPE OF CLEANING</u>	<u>CLEANING AGENT*</u>	<u>APPLICATION METHOD**</u>	<u>EFFECT ON FINISH</u>
Routine cleaning	Soap, ammonia or detergent and water.	Sponge with cloth, then rinse with clear water and wipe dry.	Satisfactory for use on all finishes.
Smears and fingerprints	Arcal 20, Lac-O-Nu, Lumin Wash O'Cedar Cream Polish, Stainless Shine	Rub with cloth as directed on the package.	Satisfactory for use on all finishes. Provides barrier film
Stubborn spots and stains, baked-on splatter, and other light discolorations	Allchem Concentrated Cleaner	Apply with damp sponge or cloth.	Satisfactory for use on all finishes.
	Samae, Twinkle, or Cameo Copper Cleaner	Rub with damp cloth.	Satisfactory for use on all finishes if rubbing is light.
	Grade FFF Italian pumice, whiting or talc	Rub with damp cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Liquid NuSteel	Rub with dry cloth. Use a small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.

<u>TYPE OF CLEANING</u>	<u>CLEANING AGENT*</u>	<u>APPLICATION METHOD**</u>	<u>EFFECT ON FINISH</u>
	Paste NuSteel or DuBois Temp	Rub with dry cloth. Use a small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Cooper's Stainless Steel Cleaner, Revere Stainless Steel Cleaner	Apply with damp sponge or cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Grade F Italian pumice, Steel Bright, Lumin Cleaner, Zud or Restoro	Rub with a damp cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Penny-Brite or Copper-Brite	Rub with a dry cloth. Use a small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Penny-Brite or Copper-Brite	Rub with a dry cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
Heat tint or heavy discoloration	Paste NuSteel or DuBois Temp	Rub with dry cloth. Use a small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Revere Stainless Steel Cleaner	Apply with a damp sponge or cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Allen Polish, Steel Bright, Wyandotte or Zud	Rub with a damp cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
			Excellent removal, satisfactory for use on all finishes.
Burnt-on foods and grease, fatty acids, milkstone (where swabbing or rubbing is not practical) Tenacious deposits, rusty discolorations, industrial atmospheric stains	Easy-Off, De-Grease-It, 4-6% hot solution of such agents as trisodium tripolyphosphate, or 5-15% caustic soda solution	Apply generous coating. Allow to stand for 10-15 min. Repeated application may be necessary.	
	Oakite No. 33, Dilac, Texo 12, Texo N.Y., Flash-Klenz, Caddy Cleaner, Turco Scale 4368 or Permag 57.	Swab and soak with clean cloth. Let stand 15 minutes or more according to directions on package. Rinse and dry.	Satisfactory for use on all finishes.
Hard water spots and scale	Vinegar	Swab or wipe with a cloth. Rinse with water and dry.	Satisfactory for use on all finishes.
	5% oxalic acid, 5% sulamic acid, 5-10% phosphoric acid, or Dilac, Oakite No. 33, Texo 12 or Texo N.Y.	Swab or soak with a cloth. Let stand 10-15 minutes. Always follow with neutralizer rinse, and dry.	Satisfactory for use on all finishes. Effective on tenacious deposits or where scale has built up.
Grease and oil	Organic solvents such as carbon tetrachloride, trichlorethylene, acetone, kerosene, gasoline, benzene, alcohol and chlorethane n.u.	Rub with a cloth. Organic solvents may be flammable and/or toxic. Observe all precautions against fire. Do not smoke while vapors are present. Be sure area is well ventilated.	Satisfactory for use on all finishes.

- * Use of proprietary names is intended only to indicate a type of cleaner, and does not constitute an endorsement, nor is omission of any proprietary cleanser to imply its inadequacy. It should be emphasized that all products should be used in strict accordance with instructions on package.
- ** In all applications a sponge or fibrous brush or pad are recommended. DO NOT use ordinary steel wool, steel brushes, chlorine bleach or products containing bleach for cleaning or sanitizing stainless steel.

GENERAL INFORMATION

NSF Product Thermometer Installation

1. Unwrap the thermometer and bracket assembly shipped loose with the case.

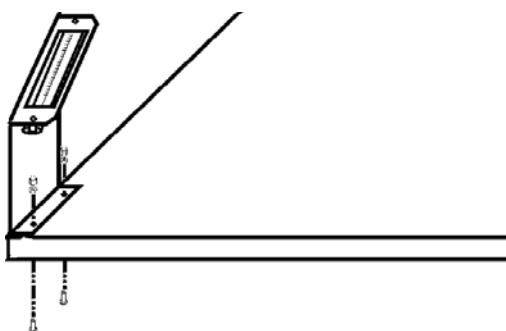
NOTE

Recommended bottom tray position is with the lips up.

2. Position bracket in front left corner of the left-most bottom tray. Making sure the bracket is flush with the left edge, use the bracket holes as a template for where to drill the holes.
3. Drill two .196" holes in the bottom tray.

NOTE

For ease of installation, position the washers and capnuts on the top side of the bracket and bottom tray.

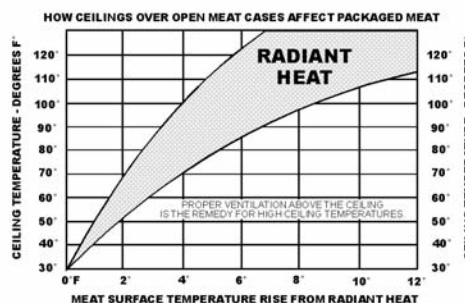
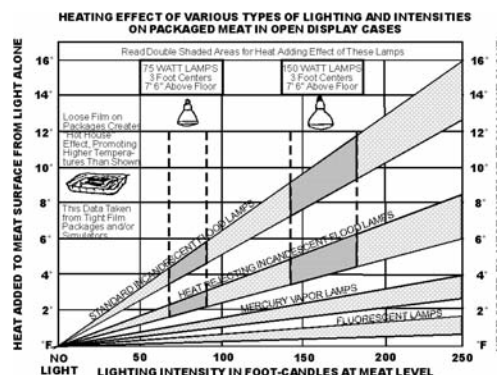


4. Mount the bracket to the bottom tray with two screws, washers and capnuts.

Radiant Heat Information

A wide temperature range is shown for each type of lighting. This data does not show all situations. Many situations will have higher package warm-up figures than indicated.

It is generally known that the temperature of displayed meat in refrigerated cases will run higher than the circulated air temperature of



the cases. A dial thermometer stuck into the center of a piece of meat compared with one in the air stream quickly confirms this fact. Another fact is that the surface temperature of the meat will be higher than the center temperature due to radiant heat. TYLER's ongoing research identifies sources of radiant heat and accurately measures and records it. These charts were developed from the information gathered during this research. Two major sources of radiant heat are from

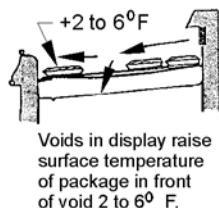
display lights and ceiling surfaces. Additional heat sources come from bad display practices which either overload the case with product or allow voids in the product display. Poor display practices impair the efficiency of the refrigeration, adding to the surface temperature of the meat. Bacteria and molds grow when surface temperatures rise above 45°F. This prematurely discolors displayed meats and causes unnecessary meat department losses.

Radiant Heat Measurement

Place two accurate dial thermometers side by side in a case. Cover one of the thermometer stems with black friction tape. The temperature difference is the approximate amount of radiant heat. A change in display lighting or a reduction of high ceiling temperatures (over 80°F) could reduce the radiant heat in the case.

Display Practices

Encourage butchers to maintain all meat below the case load lines and to eliminate product voids. Case screens could be covered in some instances to keep the refrigerated air over the display.



CAUTION

The quality damage done to meat products by high temperatures and/or contamination during delivery, cooler storage, cutting and wrapping cannot be repaired by placing the products into properly operating display cases.

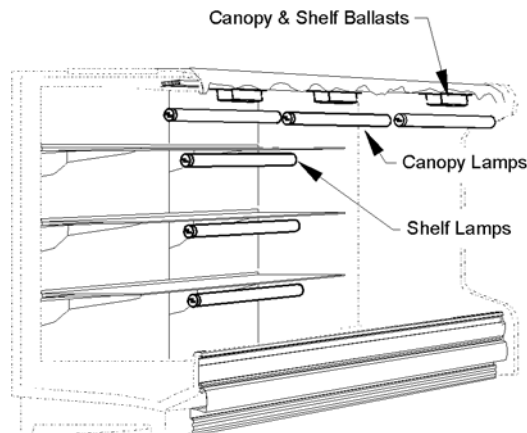
SERVICE INSTRUCTIONS

See "General-UL/NSF I&S Manual" for T-8 lamp, canopy ballast, fan blade and motor, and color band and bumper replacement instructions.

Ballast and Lighting Locations

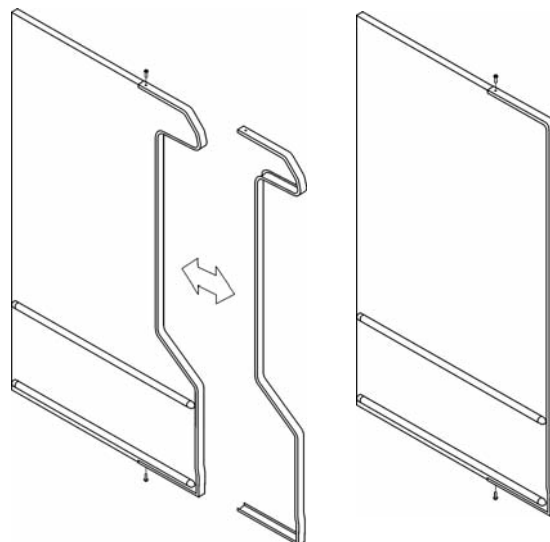
All light ballasts are located under the canopy and mounted above or on the top of the

canopy light channel. This includes remote ballasts for optional shelf lights and optional nose lights. The canopy light(s) are under the canopy light channel in the top of the case. The optional shelf lights are mounted under the top interior liner above each shelf section.



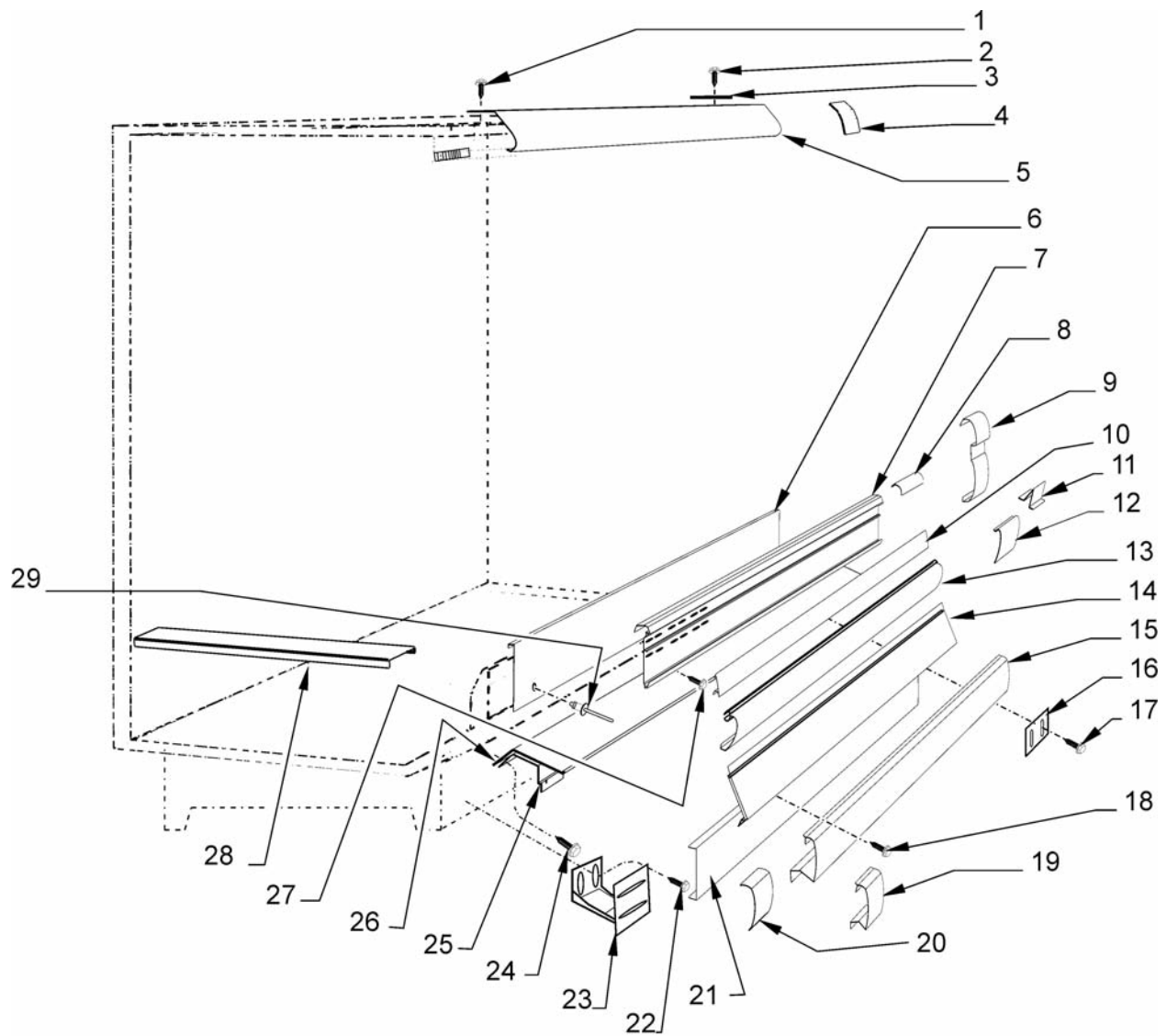
Removing Metal Edge Trim

For those who have chosen a metal trim option on Tyler patch ends, the edge trim can be easily removed and reinstalled, or replaced. The diagrams below show the locations of two screws on the top and bottom of each piece of metal trim. Locate and unscrew the fasteners first, then carefully pull the edge trim from the end.



PARTS INFORMATION**Cladding and Trim Parts List**

Item	Description	4'	6'	8'	12'
1	Screw	5183536 (4)	5183536 (4)	5183536 (6)	5183536 (8)
2	Screw	5183536 (8)	5183536 (8)	5183536 (8)	5183536 (8)
3	End Cover	9026103 (2)	9026103 (2)	9026103 (2)	9026103 (2)
4	Canopy Joint Trim	9029422	9029422	9029422	9029422
5	Canopy Hood, Ptd.	9025221	9025222	9025223	9025224
6	Front Panel	9311775	5636774	5203468	5203469
7	Hand Rail/Bumper Retainer	-----	color per order	-----	-----
8	Hand Rail Backer	9025316	9025316	9025316	9025316
9	Bumper End Trim	-----	color per order	-----	-----
10	Color Band, Ptd.	9023790	9023795	9023798	9023800
11	Color Band Backer, Ptd.	9040223	9040223	9040223	9040223
12	Bumper Backer	-----	color per order	-----	-----
13	Bumper	-----	color per order	-----	-----
14	Front Cladding, Ptd. (N6MHPL)	-----	9025135	9025136	9025137
	(N6DHPM)	9304843	9025647	9025648	9025649
15	Raceway Cover	-----	color per order	-----	-----
16	Raceway Cover Retainer	9023841 (4)	9023841 (4)	9023841 (4)	9023841 (6)
17	Screw (per retainer)	5183536 (2)	5183536 (2)	5183536 (2)	5183536 (2)
18	Screw	5183536 (5)	5183536 (7)	5183536 (9)	5183536 (12)
19	Raceway Cover End Trim	-----	color per order	-----	-----
20	Raceway Cover Backer	-----	color per order	-----	-----
21	Metal Kickplate, Ptd.	9324388	9324394	9324402	9324407
	Kickplate Joint Trim, Ptd. (Not Shown)	9039020	9039020	9039020	9039020
	Screw (Not Shown)	9324612 (6)	9324612 (5)	9324612 (6)	9324612 (6)
22	Shoulder Screw	9025833 (8)	9025833 (8)	9025833 (8)	9025833 (8)
23	Kickplate Support Assy.	9043402 (4)	9043402 (3)	9043402 (4)	9043402 (4)
24	Screw	5183536 (4)	5183536 (8)	5183536 (12)	5183536 (16)
25	Raceway Support	9041322 (4)	9041322 (4)	9041322 (6)	9041322 (8)
26	Raceway	9311760	9300242	9300243	9300244
27	Screw, Shoulder	9025833 (8)	9025833 (12)	9025833 (16)	9025833 (24)
28	Horizontal End Trim	5211585	5211585	5211585	5211585
29	Pop Rivet	5105037 (5)	5105037 (5)	5105037 (10)	5105037 (14)



Operational Parts List

Case Usage	Domestic			
Electrical Circuit	115 Volt 60 Hertz			
Case Size	4'	6'	8'	12'
Fan Motors	9458944 23 Watt	9458944 23 Watt	9458944 23 Watt	9458944 23 Watt
Fan Motor Brackets	9305524	9305524	9305524	9305524
Fan Bracket Plate	9041077	9041077	9041077	9041077
Fan Blades (8.75" 40° 5B)	9038994	9038994	9038994	9038994
Ballast (T-8 shelf lamps)	5966635	5966635	5966635	5966635
Ballast (5th row shelf lamp)	5991029	5991030	5991029	5991030
T-8 Shelf Lampholder	5232279	5232279	5232279	5232279
Light Switch	5100565	5100565	5100565	5100565
NSF Product Thermometer	5967100	5967100	5967100	5967100

For information on operational parts not listed above contact the TYLER Service Parts Department.

Revision Log

This log sheet is intended to track both major and minor revisions to this manual, and to describe what the nature of the revision is. Revision identification is located in the lower right corner of the cover page.

Major revisions are lettered alphabetically, dated accordingly, and require reprinting for inclusion with the product at shipment. Minor revisions are denoted after the major revision with a “period” followed by a sequential number, and do not require a printed update. All manuals with any revision changes will be available in electronic PDF format on the Tyler Refrigeration website.

Content changes that determine the type of revisions are decided on a case-by-case basis by Tyler internal management. This revision log was created in October of 2008.

DATE	REVISION TYPE		DESCRIPTION	RESULTS
	MAJOR	MINOR		
Oct 2008		B.1	Changed wiring diagrams ... Update Service Instructions added terminal blocks to electrical. ... added metal edge trim replacement.